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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Richard S. Orr

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EXAMINER

LUGO, DAVID B

ART UNIT

PAPER NUMBER

2637

DATE MAILED: 09/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/994,015

Applicant(s)

ORR, RICHARD S.

Examiner

David B. Lugo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 July 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 7-9, 13-15, 17, 18, 21, 25, 26, 29, 31-35 and 38-42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 13-15, 17, 18, 29 and 31-35 is/are allowed.
- 6) ☒ Claim(s) 1-3, 7-9, 21, 25, 26, 38 and 40-42 is/are rejected.
- 7) ☒ Claim(s) 39 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. The indicated allowability of claims 6, 12, 24 and 28, which have been rewritten into independent claims 1, 7, 21 and 25, is withdrawn in view of the newly discovered reference(s) to Ames et al. U.S. Patent 5,124,748. Rejections based on the newly cited reference(s) follow.

Claim Objections

2. Claims 3 and 9 objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim.

Both claims 3 and 9 recite that the communication signal and the spread spectrum signal are transmitted using separate transmission sections, while claims 1 and 7, from which claims 3 and 9 depend, respectively, recite that the chirp spread spectrum signal is embedded in frames of the communication signal. Thus, claims 3 and 9 do not further limit claims 1 and 7, since the system of claims 3 and 9 is exclusive from one in which the spread spectrum signal is embedded in the communication signal.

Claim Rejections - 35 USC § 102

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 1, 3, 7, 9, 21 and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Ames et al. U.S. Patent 5,126,748.

Regarding claims 1, 7 and 21, Ames et al. disclose a navigation system in Figure 2 including a transmitting station 10 that transmits digital information on a carrier signal from a first antenna 10b (col. 6, lines 50-52), the transmitting station further including a time base

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(forward link clock – col. 8, lines 52-54), where the communication signal is considered to be output in synchronization with the time base, the communication signal comprises time frames (col. 10, lines 15-18), considered to include a plurality of frames, and a chirp signal that is a triangle chirp waveform is generated (col. 16, lines 51-55; see Fig. 5) having an up-chirp portion that linearly increases in frequency with time and a down-chirp portion that linearly decreases in frequency with time (col. 16, lines 35-39), where the triangle chirp is considered to be embedded within the frames of the communication signal.

Regarding claims 3 and 9, Ames et al. disclose that a first antenna 10b is used to transmit the communication signal (col. 6, lines 50-52), and a second antenna 10c is used to transmit a chirp signal (col. 6, lines 56-59).

Regarding claim 25, Ames et al. disclose a navigation system in Figure 2 including a transmitting station 10 where a triangle chirp signal is generated (col. 16, lines 51-55; see Fig. 5) having an up-chirp portion that linearly increases in frequency with time and a down-chirp portion that linearly decreases in frequency with time (col. 16, lines 35-39), where the triangle chirp is considered to be embedded within first and second portions of a communication signal.

Claim Rejections - 35 USC § 103

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claims 2 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ames et al. in view of Gilhousen et al. U.S. Patent 5,280,472 (previously cited).

Regarding claims 2 and 8, Ames et al. disclose a system as described above, but do not expressly disclose a diplexer of combining means for combining the communication signal and

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the spread spectrum position determination signal into a composite signal, where an antenna or broadcasting means is used to transmit the composite signal.

Gilhousen et al. disclose a transmitter in Figure 4 including a summer 116 for summing with multiple channel outputs, and provided to diplexer 100 for transmitting a composite signal via an antenna 26 (see col. 18, lines 51-65).

It would have been obvious to one of ordinary skill in the art to provide a composite signal via a diplexer to an antenna for transmitting the communication signal as taught by Gilhousen et al. in the transmitting station of Ames et al. in order to allow for communication while using only a single antenna unit, thus reducing the cost of the system.

7. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ames et al.

Regarding claim 26, Ames et al. disclose a navigation method as described above, and further discloses that information is transmitted in time frames in a TDMA format (col. 10, lines 15-18), where first and second portions of the signal are considered to correspond to first and second frames. Ames et al. do not disclose that the transmitted signal is a TDM/FDMA signal. However, TDM/FDMA signals are well known in the art, and it would have been obvious to one of ordinary skill in the art to employ the method of Ames et al. using TDM/FDMA signals as a matter of design choice.

8. Claims 38 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schuchman et al. U.S. Patent 6,111,538 (previously cited) in view of Ames et al.

Regarding claim 38, Schuchman et al. disclose a method of determining a position of a mobile unit in a communication system having a spread spectrum chirp navigation signal embedded in the incoming signal (see abstract), where a receiver (Fig. 5) receives a

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communication signal comprising extracting the spread spectrum chirp signal from a received communication signal using the processing chain is illustrated in Fig. 8 (see col. 12, lines 23-25; col. 14, lines 38-43), the receiver further comprising a signal processor unit (CPSP – Fig. 5) coupled to the mixer and configured to receive the downconverted signal to detect the navigation signal and determine a pseudorange measurement based on the navigation signal for position measurement (see col. 9, lines 24-26; col. 12, lines 3-20).

Schuchman et al. do not disclose that the chirp signal includes a first chirp portion of a first sense and a second chirp portion of a second sense opposite to the first.

Ames et al. disclose a position measurement system utilizing a triangle chirp signal (col. 16, lines 51-55; Fig. 5) having an up-chirp portion that linearly increases in frequency with time and a down-chirp portion that linearly decreases in frequency with time (col. 16, lines 35-39).

It would have been obvious to one of ordinary skill in the art to use a chirp signal as taught by Ames et al. in the system of Schuchman et al. because such a chirp signal is suited for position measurement (Ames col. 16, lines 51-55).

Regarding claim 42, Schuchman et al. disclose that communication signals are transmitted from a plurality of transmitters for determining a plurality of pseudorange measurements (col. 9, lines 41-44), where the position of the mobile is based on the plurality of pseudorange measurements (col. 9, lines 45-48).

9. Claims 40 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schuchman et al. in view of Ames et al. as applied to claim 38 above, and further in view of Keegan U.S. Patent 4,972,431.

Regarding claims 40 and 41, Schuchman et al. in combination with Ames et al. disclose a method of determining a position of a mobile unit as described above, but do not expressly disclose averaging a number pseudorange measurements taken over time or accumulating averages to remove noise and interference.

Keegan discloses a positioning system receiver that averages a number of pseudorange measurements to reduce noise (col. 3, lines 35-42). It would have been obvious to one of ordinary skill in the art to average pseudorange measurements as taught by Keegan in the system of Schuchman et al. in order to reduce the effects of noise.

Allowable Subject Matter

10. Claims 13-15, 17, 18, 29 and 31-35 are allowed.

11. Claim 39 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David B. Lugo whose telephone number is 571-272-3043. The examiner can normally be reached on M-F; 9:30-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on 571-272-2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

David Lugo
9/22/05


KHAI TRAN
PRIMARY EXAMINER